Prototype Project Assessment and Evaluation Plan
Habitat Restoration

Eradicating Arundo donax from the Mill Creek Watershed and Establishing a Re-introduction Prevention Program

I. Project Summary

A. Funding Program

The Project is supported by the Proposition 40 Integrated Watershed Management Program, and local and federal matching funds.

B. Project Description

Oakwood County and the Resource Conservation District are collaborating to build on recently completed mapping efforts in the Mill Creek Watershed and implement a full-scale Arundo donax (giant reed) eradication program based on the demonstration project methodology developed under a recently completed CALFED Ecosystem Restoration Program grant.

C. Problem Statement:

i. Identify or characterize baseline data

Infestation of the invasive giant reed (Arundo donax) has recently been mapped for the entire Mill Creek Watershed. Arundo is native to riparian areas in Asia and was promoted as an erosion control mechanisms in Soil Conservation Service handbooks until late into the last century. The giant reed alters riparian ecosystem functions and habitat values for native species in numerous ways, in addition to presenting a flood and fire management challenge. Although no systematic studies have been undertaken to document its impacts on evapotranspiration, it is also suspected to severely alter the water budget by accelerating transpiration of surface and subsurface water, thereby contributing to the dewatering of streams during periods critical to native fish species and aquatic invertebrates. Once established, giant reed outcompetes existing native riparian vegetation and generates monoculture stands. Mapping results indicate that about 420 acres are infested within the 200 square-mile watershed of Mill Creek. Arundo is known to only reproduce vegetatively, thereby enabling complete eradication in any given area, as long as removal is systematic from the top to the bottom of the watershed so that floods cannot disperse viable rhizomes or canes. The RCD conducted an extensive education and outreach campaign from 2003-05 targeted at affected landowners to facilitate access to infestation sites. An EIR was developed in early 2005, and all required permits are being processed at this time.

ii. Identify one or more sources of pollution

N/A

iii. Identify and describe current restoration activities; Best Management Practices (BMPs); load reduction activities; prevention activities

The County Department of Public Works has a removal policy in place, albeit only as part of its ongoing flood management and floodway maintenance program. The Resource Conservation District staff has obtained training in eradication

methodology in a neighboring watershed but has heretofore lacked the funds to implement an eradication and re-infestation prevention program.

iv. Describe the manner in which BMPs or Management Measures are proposed to be implemented

We propose to utilize pond liner material after mechanically removing aboveground biomass to cover cut stands of Arundo and prevent the clones from photosynthesizing. This eradication methodology has proven to be the most cost-effective and least environmentally damaging alternative in the neighboring Russian River watershed. Usually, stands of Arundo are dead within two weeks. Aboveground biomass will be chipped as close to the eradication site as possible and composted on-site. Eradication will begin at the end of the wet season at the end of May in the uppermost reaches of Mill Creek and gradually work downstream toward the tidal marsh complex at the bottom of the watershed. Both the Public Works Department and the RCD will mobilize their existing volunteer crew and the California Conservation Corps to systematically remove canes and place pond liner over the remaining above- and below-ground biomass. We expect to be able to remove all 420 acres within the three-year project period.

v. Summarize how the effectiveness of project implementation will be measured

We propose to measure effectiveness of the project primarily through comparison of digital maps before eradication with site visits and ground photography at the end of the eradication period throughout the project as identified stands are eliminated. Updates to the digital datalayer housed at the RCD will be made after confirmation of non-viability of treated stands. Table 1 shows the proposed indicators to be used in evaluating effectiveness of the project.

vi. Determine, to the extent feasible, changes in flow pattern in affected water bodies

N/A

vii. Determine economic benefits of implementing project

N/A. Not a requirement of IRWMP.

D. Project Activities or Tasks

Task 1: Project Management and Administration
Task 2: Develop detailed implementation and monitoring plans, outlining treatment locations, anticipated eradication sequence, and post-implementation documentation. Adjust safety procedures and field reconnaissance manual as necessary.
Task 3: Contact landowners and obtain permission to implement eradication
Task 4: Transport available pond liners from Healdsburg storage location in the Russian River watershed and distribute to Mill Creek staging areas according to implementation plan. Mobilize volunteer and staff.
Task 5: Train and mobilize field crews in safety procedures, for cane-cutting, micro-chipping, on-site composting of biomass, and placement of pond liners.
Task 6: Conduct post-eradication site visits to document success.
Task 7: Prepare re-infestation prevention plan and incorporate plan into Public Works floodway maintenance SOPs.
Task 8: Prepare project completion report, including updated maps and updates to methods manual. Submit maps to GeoWBS.

E. Category of Project Activities or Tasks*:*

All project activities and tasks fall into the Habitat Restoration Category.

II. Project Goals & Desired Outcomes

The goals of this project are:

1) Eliminate Arundo donax from the Mill Creek Watershed

2) Adopt a re-infestation prevention plan

The desired outcomes of this project are:

1) Reduction of giant reed coverage of 420 acres to less than one acre.

2) Adoption of prevention plan and incorporation of re-infestation prevention plan into Public Works Department Standard Operating Procedures Manuals.

III. Project Performance Measures Table

Table 3
Example Performance Indicators for Habitat Restoration
Eradicating <u>Arundo donax</u> from the Mill Creek Watershed and Establishing a Re-introduction Prevention Program

Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
1. Eliminate *Arundo donax* from the Mill Creek Watershed	Reduction of giant reed coverage of 420 acres to less than 1	1. No. of landowners granting access permission; 2. No. of volunteers participating in training and implementation	1. Percent of each watershed segment with eradicated stands of A.d. 2. Re-establishment of native riparian vegetation	Russian River *Arundo* Eradication Manual	100% eradication in upper and middle reaches of watershed; 90% eradication from lower watershed
2. Prepare a re-infestation prevention plan	Adoption of prevention plan and incorporation of re-infestation prevention plan into Public Works Department Standard Operating Procedures Manuals	1. Finalization of prevention plan 2. Integration with existing floodway maintenance SOPs	1. Adoption of prevention plan. 2. Broad knowledge of Public Works supervisors about SOP updates. 3. Floodway maintenance schedule based on watershed reaches sequenced from upstream to downstream	Specified by Grantee	100% county staff awareness of newly adopted SOP.